KARNATAKA POWER TRANSMISSION CORPORATION LIMITED

No. KPTCL/B28(a)/20961/2015-16

Corporate Office
Kaveri Bhavan
Bengaluru-560 009

Sub: Evacuation facilities / interconnection facilities in respect of Wind and Solar Generators seeking connectivity with the grid up to 5 MW - regarding.

Ref: Note no. CEE(P&C)/SEE(Plg)/EE(PSS)/IPP/KCO-94&96/15-16 dated 16.9.2015 of the CEE (P&C), KPTCL approved on 19.10.2015.

Preamble:

Over the years number of Independent Power Producers especially from renewable energy sources have increased manifold. Also, the new Solar Policy-2014-21 announced by the Government of Karnataka has contributed for increased no. of solar power plants seeking connectivity with the Grid whose gestation period is very small. M/s. KREDL in tune with the said policy have allocated about 300 MW of solar Generation capacity to farmer community for generating 1MW to 3MW of Solar power all over Karnataka State under **'Land Owned Farmers Scheme'**. As a result, applications seeking evacuation / interconnection facilities have increased and besides, these small power Generators normally seek evacuation facilities at 33 kV and below voltage class which comes under the domain of Distribution companies.

As per the CEA (Technical Standards for Connectivity to the Grid) Regulations-2007, the Generator seeking the evacuation / interconnection facility at 33kV voltage class are required to make an application to the Distribution Licensee. Also, as per the CEA (Technical Standards for Connectivity of Distributed Generation Resources) Regulation-2013, the Generator seeking evacuation / interconnection facility below 33kV voltage class are required to make an application to the Distribution Licensee/Transmission Licensee.

Further, these renewable energy Generators have small gestation period and are required to commission the project within the time specified in the Government Order and hence are seeking immediate process of their evacuation / interconnection facilities.

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EE(P&C) 29/12/15

In the backdrop of these, and in order to speed up the process of extending interconnection facilities with the Grid for the prospective Generators, the following procedure is ordered to be followed with immediate effect as per the enclosed guidelines annexed herewith;

Hence this Order.

Order no: KPTCL/B28(a)/20961/15-16 **Date: 21-12-2015**

Approval is hereby accorded to process the evacuation / interconnection facilities in respect of Wind and Solar Generators seeking connectivity with the Grid with allotment capacity of up to 05 MW as per the procedure narrated below;

1. Generator of 05 MW capacity & below and which is seeking connectivity at 33 KV voltage & below with the substation owned, operated and maintained by ESCOM's, here afterwards are required to be processed by the respective ESCOM's in whose jurisdiction the Generator plant is being put up.
2. Generator of 5 MW capacity & below and which is seeking connectivity at 33 KV voltage & below with the substation owned, operated and maintained by KPTCL, here afterwards, are required to be processed by the respective Chief Engineers of Transmission Zone in whose jurisdiction the Generator plant is being put up.
3. **For the sake of simplicity and to avoid confusion in the minds of Generators seeking connectivity with the Grid in filing their application**, it is hereby ordered that all applications seeking connectivity with the grid in respect of Generators' of capacity 05 MW and below and at voltage class of 33 KV and below shall be filed at **the jurisdictional Chief Engineer of Transmission Zone, KPTCL in whose jurisdiction** the Generator plant is being put up who shall immediately transfer such application to the jurisdictional ESCOM in case the connectivity is sought with the substation owned, operated and maintained by ESCOM.(Sl. No. 1)
4. Generator of more than 5 MW capacity and irrespective of the voltage class at which the connectivity is being sought is continued to be processed by the Chief Engineer (P&C), KPTCL.
5. All other applications except those mentioned in (c) above, shall continue to be filed at the office of the Chief Engineer (P&C), KPTCL who shall continue to process such application.

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6. The approvals communicated for evacuation / interconnection facilities either by ESCOM or by the Chief Engineers Electy., of Transmission Zone shall be marked to the office of the Chief Engineer Electy., Planning & Co-ordination, KPTCL in order to facilitate updating of the planning data base for planning and strengthening of the backbone of the Grid.
7. Also the status of application filed by Generators seeking connectivity with the Grid shall be intimated to the office of the Chief Engineer Electy., Planning & Co-ordination, KPTCL every fortnight in order to facilitate hosting of the status of the application on the KPTCL's website for the information of the public.
8. This order shall not apply to Roof top solar/wind/Hybrid Generators seeking connectivity irrespective of their capacity with the 11 KV or 400/230 V distribution feeder of ESCOM's which shall continue to be processed by respective ESCOM's.

Deputy General Manager (Tech)
KPTCL

To:

1. The Managing Director, BESCOM, HESCOM, MESCOM, CESC, GESCOM, Hukkeri Co-Operative Society.
2. The Director(Technical), BESCOM, HESCOM, MESCOM, CESC, GESCOM.
3. All Chief Engineers (Electy)., KPTCL.
4. All Superintending Engineers (El), W & M/Works Circle, KPTCL.
5. All Executive Engineers (El), MWD/TL&SS Division, KPTCL.
6. PS to the Managing Director, KPTCL, Kaveri Bhavan, Bengaluru.
7. PS to the Director(Technical), KPTCL, Kaveri Bhavan, Bengaluru.

Copy to:

8. The Superintending Engineer (El), IT & MIS with a request to arrange to upload this order in the KPTCL website for view of the officers of KPTCL.

ANNEXURE

I. **Guidelines forcommunicating evacuation scheme and interconnection approvals for Wind and Solar Generators seeking connectivity with the Grid of capacity 5 MW and below;**

1. Along with the application on a plain paper, the Generator seeking connectivity with the grid is required to furnish the Government Order (G.O) / KREDL L.O.A indicating the sanction to the Generator's project, (along with the agreement if insisted in the G.O and compliance to the conditions illustrated in G.O / L.O.A) Detailed Project Report & toposheet marking the project location along with the nearby KPTCL substation with distance etc, to the Jurisdictional Chief Engineer Electy., Transmission Zone, KPTCL in whose jurisdiction the Generator plant is being put up.
2. The Chief Engineer of the Transmission Zone shall scrutinize the application and in case if connectivity is sought with the substation which is owned, operated and maintained by ESCOM, he/she shall take immediate action to forward such application to the Corporate office of the concerned ESCOM in whose jurisdiction the Generator plant is being put up with a copy to jurisdictional CEE, SE (O&M) or otherwise, he/she shall further process the application.
3. The application shall be scrutinized thoroughly by ESCOM / KPTCL (wherever applicable) and if all the required documents have been enclosed along with the application then the Generator shall be intimated to pay processing fee as per circular order no. KPTCL/B28/4359/08-09 dated 6.1.2015 plus applicable service tax i.e. Rs. 50,000/- plus applicable service tax to ESCOM/KPTCL.
4. On receipt of the payment towards processing fees, evacuation feasibility shall be processed considering the nearest substation to the Generating plant during which the following aspects shall be kept in mind;
    a. It shall be ensured that owing to addition of the proposed Generation in the network, the loading of the transmission system (i.e. the system comprising of both transmission line and power transformer) shall not cross beyond their permissible loading limit during **lean load condition of the substation** to which the Generated power is proposed for injection.
    b. Further, the transmission system loading shall be restricted to 70% of its permissible loading limits considering **lean load condition of the substation** and in case the

permissible loading limit is to cross beyond 100% of its capacity, then alternative nearest substation to which power could be injected shall be considered.

5. The tentativeevacuation facility as decided on the points mentioned above shall be communicated to the Generator indicating the evacuation scheme proposed in brief along with the following terms and conditionsseeking concurrence of Generator.
   a. The Generator shall put up the evacuation scheme herein notified on its own on 'self-execution' basis and shall own, operate and maintain it.
   b. Before proceeding with the installation of the evacuation scheme, the Generator shall obtain clearances for all the drawings from the office of the Chief Engineer, Transmission Zone, KPTCL / Corporate office of ESCOMs which will be made available to Generators. The drawings provided to them shall not be shared with the others as it is the property of the KPTCL.
   c. The Generator shall comply with the Central Electricity Authority (Technical Standards for connectivity to the Grid) Regulations-2007 to facilitate interconnection of his/her/their Generating plant with the Grid and also with the other relevant Codes Regulations of KERC.
   d. The Solar Generator shall provide dynamic reactive compensation at their pooling station/substation/common pooling station so as to ensure that no reactive power is drawn from the grid at any given point of time. The reactive compensation that may be required is tabulated in the table V.
   e. The Wind Generators / Solar Generators getting connected should comply with requirement of LVRT as brought out under section B1 and B2 of the Central Electricity Authority (Technical Standards for connectivity to the Grid) Amendment Regulations-2013. The wind Generators are required to produce type test certificate as per IEC-61400-21(second edition August-2008) standards in respect of capability of LVRT for the generators going to be interconnected with Grid without which interconnection would be denied.
   f. The Standards and accuracy class of metering shall be as per Central Electricity Authority (Installation and Operation of Meters) Regulations-2006 and shall be equipped with communication facility for transfer of data (electrical parameters) and be able to integrate with KPTCL's / ESCOMs SCADA system and to be provided at substation end.

g. The Generator is required to procure suitable land adjacent to the switchyard of the KPTCL/ESCOM substation to which the Generated power is to be evacuated so as to facilitate construction of line terminal bays for terminating their evacuation lines. The terminal bay along with the space procured by the Generator shall only be handed over to KPTCL/ESCOM (not the dedicated transmission line) for maintenance of terminal bay equipment. However, the KPTCL / ESCOM on request from Generator may consider parting of its land for putting up terminal bays of the Generator if the same is available after reckoning the requirement of KPTCL / ESCOM for its expansion on payment of lease charges. Such request for parting with land shall be made to the Chief Engineer Electy., (P&C), Room no: 208, 2nd floor, District office Road, Kaveri Bhavan, Bengaluru-560-009. However, the KPTCL is not bound to provide space for erection of terminal bays of the Generators and KPTCL's decision in this regard is final and binding. In cases of ESCOMs, Corporate office of ESCOMs can take a decision on this.

h. The Generator has to pay annual O&M expenses on demand at the rate 1.5% of the capital costfor the infrastructure to be maintained by KPTCL/ESCOM (only for terminal bay) with applicable service tax with 12% escalation every year as per the Corporate Order no: KPTCL/B28(a)/32543/12-13 dated:17.8.2012 soon after interconnecting their Generation plant with the Grid. The said O&M expenses doesn't include the cost of the equipment to be replaced due to its failure or otherwise which shall be charged extra as per actuals and shall be payable on demand.

i. The Generator has to pay SCADA connectivity charges on demand as per Corporate Order dated 21.09.2012 which will be intimated by Superintending Engineer (El), (SCADA), KPTCL, A.R. Circle, Bengaluru and produce copy of receipt for having remitted the charges along with SCADA work completion report before seeking synchronization approval (both in case of KPTCL / ESCOM).

j. The Generator has to carry out any modification /alteration /repairs/ replacement / rectification if any, that may arise or necessitated for putting up the terminal bays to facilitate termination of their evacuation lines at KPTCL / ESCOM substation as per the directions and approvals of this office and pay on demand 'supervision charges' for the works carried out which will ultimately gets handed over to KPTCL / ESCOM for its maintenance as the case may be.

k. All the required statutory approvals form Forest/PTCC/Railway/Electrical inspectorate etc., shall be in place before seeking synchronization approval.

l. The validity for the evacuation approval shall be for a period of 18 months from the date of intimation subject to currency of G.O in force whichever is earlier or the period specified in the G.O / PPA.

6. On receipt of acceptance/concurrence for the tentativeevacuation scheme by the Generator, regular/permanent evacuation scheme be communicated duly indicating the following additional conditions along with the conditions illustrated in the tentative evacuation scheme:

   a) After having accepted / concurred with the Regular/Permanent evacuation facility, if the Generator wishes either to change the exportable capacity of the generating plant or the already communicated evacuation scheme, then the earlier evacuation scheme communicated would become null and void and Generator shall file fresh application together with required amount processing fees for processing such requests. The processing fee for revision in scheme or enhancement in evacuation capacity is Rs. 75,000/- plus applicable service tax.

   b) If the Generator premises is already having Grid connectivity (i.e., Transmission line) to draw power from the Grid to his premises as a 'consumer' and if the same line is not suitable to pump Power as a Generator, and if the generator constructs a separate line of suitable capacity to pump Power as well as to draw Power, then they will have to dismantle (surrender) the existing line, so that only one connectivity is maintained to the Grid.

   c) The Specifications of materials and drawings shall be got approved by the office of the concerned Zonal Chief Engineer Electy, KPTCL.

   d) The materials and equipment's being used for the evacuation scheme work shall be got inspected by Technical & Quality Control wing of KPTCL before its erection.

   e) All the required statutory approvals from Forest/PTCC/Electrical inspectorate etc.,and any other statutory clearances that may be required shall be in place before seeking synchronization approval.

   f) Granting of regular evacuation approval for the power plant shall not be construed to mean that requirements of all other laws have been fulfilled by the Generator. It is the Generator who shall be responsible for compliance of all statutory

requirement/approvals under other laws and for any non-compliance, the Generator alone shall be responsible and KPTCL / ESCOM shall not be liable for any action whatsoever in this regard.

g) The regular evacuation approval is issued for the purpose of facilitating putting up of required evacuation line for evacuation of power form their Generating plant. After completion of evacuation line work, the Generator shall file a request for interconnection/synchronization of his/her/their Generating plant with the Grid along with all the statutory clearances andcompliances to the conditions indicated above.

7. The site responsibility schedule as per CEA (Technical standards for connectivity to the Grid) Regulation-2007 shall be drawn and finalized between the concerned Executive Engineer (El). TL&SS Division, KPTCL and the Generator or his/her/their authorized representative.

II. <u>Guidelines for communicating extension of evacuation scheme approvals:</u>

1. In case if the regular evacuation scheme communicated has expired, then the following procedure shall be followed;
   a. The Generator has to produce valid G.O (G.O having time period extension in case if the validity of the G.O has expired) / competent authority sanction.
   b. It may be noted that, under no circumstances the extension of the time period for evacuation scheme shall be given without the valid G.O / competent authority sanction in force.

III. <u>Guidelines for communicating revision in evacuation scheme / revision in evacuation capacity approvals:</u>

1. In case if the Generator approaches for revision in evacuation scheme / revision in evacuation capacity for the scheme previously communicated, then following procedure shall be followed:
   a. If the Generator seeks for revision in evacuation capacity, then the Generator shall be insisted to produce the G.O/competent authority's sanction for enhancement in generation along with the agreement if insisted in the G.O and the compliance to the conditions illustrated in G.O / competent authority's sanction.

b. On receipt of the required documents, the Generator shall be intimated to pay processing fee in connection with revision in evacuation scheme / evacuation capacity as per circular order no. KPTCL/B28/4359/08-09 dated 6.1.2015 plus applicable service tax i.e. Rs. 75,000/- plus applicable service tax.

c. On receipt of the payment towards processing fees, evacuation proposal shall be processed in the similar way brought out under para I.

2. In case, if the revision in evacuation capacity exceeds 5MW, the application along with the evacuation scheme communicated earlier shall be forwarded to the **O/o the Chief Engineer, Elec, Planning & Co-ordination, KPTCL, KaveriBhavan, Bengaluru.**

NOTE: The request of the Generator for sparing of land at KPTCL / ESCOMs substation for putting up of his/her/their terminal bay to terminate their evacuation line shall be brought to the notice of the Chief Engineer, Elec, (Planning & Co-ordination), KPTCL, KaveriBhavan, Bengaluru / Corporate office of ESCOMs with the site layout plan in order to place it before the Committee formed vide Corporate Order no: KPTCL/B28(a)/32543/12-13 Dt.17.8.2012.

IV. Guidelines for communicating inter connection approvals:

The request of the Generator for interconnection approvals shall be processed only if the evacuation scheme validity is in force and after the following documents are obtained from the Generator and on completion of the evacuation scheme work:

a. Power Purchase agreement / document for commercial mode of operation or any documents which identifies beneficiary for consumption of power.

b. Approved Single Line Diagram of the metering arrangement.

c. Work Completion report from concerned Executive Engineer, Transmission works Division//TL&SS Division for having completed the evacuation work as per approved evacuation scheme.

d. Pre- Commissioning test report from Executive Engineer (El), Relay Testing Division, KPTCL and Executive Engineer (El), O&M Division, ESCOM..

e. SCADA work completion report from SEE, SCADA, Bengaluru.

f. Approval from CEIG to Govt, for commissioning the generator, lines, Switch yard and allied equipments etc,.

g. Clearances from PTCC, Railways, Forest, etc., wherever applicable.

h. Material acceptance certificate from TA&QC.

i. Receipt for payment made towards land lease charges, supervision charges etc,.

V. **Table showing indicative reactive power compensation required for the Solar Generation up to 5MW only:**

Sl No.	Generation installed Capacity	Indicative Reactive Power Compensation required in MVAR
1	1 MW	0.203
2	2 MW	0.406
3	3 MW	0.609
4	4 MW	0.812
5	5 MW	1.015